Why One Concussion Can Change Your Brain for Years Transcript

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Intro and concussion-to-ACL connection

So most ACL tears are non-contact, about 75% of ACL tear are not in contact. And then within that, so that means you're not taking a hit, right? You're just, it's really just you stepping wrong, you planting wrong and you just tear through that ACL.

So really looking at that and now a lot of the research that's coming out is showing between 70 and 80% within of individuals after a concussion within a year will have a lower extremity injury.

So that's where a lot of that comes where if you lose that motor control, that spatial awareness, and that ability to make a quick reaction, then you put yourself in a vulnerable position and then, you can't support yourself.

Welcome to Take Back My Brain with Lori Hammer, where real healing starts in the brain. I'm Lori, a functional nutritionist and mom who's walked the path from anxiety and burnout to clarity and calm.

Each week, we're going to dive into brain-based tools like amino acid therapy, gut health, fasting and faith to help you reclaim your energy, emotions and sense of self.

Thank you. Hello, everyone. Welcome back to Take Back My Brain. I'm your host, Laurie Hammer, and today I have with me Dr.

Dr. Joe O'Toole's background and path into neurology

Joe O'Toole from Des Moines, Iowa. So he is in my neck of the woods, so I am super excited to have him today. He is a board-certified functional neurologist, he specializes in neuro-rehabilitation, functional, neurology, holistic approaches to brain health.

so, I love everything that he's doing, He's my jam. We're going to an amazing conversation today, And I cannot wait to hear your story, how you got into chiropractic care, but Dr.

Joe, welcome to the podcast. Yeah. Thanks for having me, Lori. It's great. So you said in the information you sent me that your experience began in high school with football.

With this whole neurology thing, was that a concussion that happened? Yeah, so kind of my story, I grew up in a family with eight boys, one girl. Oh, wow.

God bless your mom. Yeah. And she was a nurse by trade. So she ended up staying home with us because there was enough nursing at home that needed to be done with a boy.

Definitely, yeah. Yep. I had a concussion from an older brother, but it actually didn't create any long-term effects for me personally. But then I have a younger brother.

Then I played high school sports and did all the stuff. But then a younger brother of mine that I actually practice with now, we're both board certified in neurology, but he had a concussion in high school and I was coaching football at that time.

I'm helping coach his team. Uh, I had gotten into coaching. And so, so he, uh, he got a pretty significant concussions, went undiagnosed and didn't get pulled from the game.

All, all the stuff that happened to that era. And then about three months late, uh, three to five months later, he ended up tearing his ACL. He ended having two torn ACLs.

That's kind of where, we didn't initially connect it to that, to the concussion, but then now years later that's kinda come back around and we started to understand that.

But so, so that kind where my interest started lying was I was coaching high school football and, and then I, I'm working with special needs adults. Hmm.

And I thought I was going to actually go to school for teaching special ed, but then God had another path for me and kind of wound around and went into chiropractic and mostly focused on more sports meds, sports rehabilitation with that.

And so then when I as out into practice, I started coaching at my local high school here in Des Moines. And so I was coaching there for about four years and just seeing a lot of the concussions that were happening and being mistreated.

And one real pivotal moment for me was during one morning during our coaches meeting after a game, we got our injury report and we had 17 suspected head or neck injuries, which is our suspected concussion.

We had a team of about 55, 60 players. So I'm thinking statistically, that is impossible. And so, so that's, that what kind of then led into, um, okay, if something needs to be done.

And, and so with that, I need to go back to school. So then my brother and I, uh, again, because of his history with concussion and his interest in that.

We went back school and did. three years of post-doctorate and clinical neurology through the Kehr Institute and then did two years a fellowship in concussion rehabilitation.

How concussions affect injury risk

And then because of, as we're going through that, then my daughter started having some pretty severe behavioral issues that were tied into some neurologie that was happening.

So as were searching for answers, I ended up going during another six months in pediatric developmental disorders. So that's kind of been my journey is just more out of necessity, both for myself, my players, brother, family members, and my daughter.

And so that then what's led us to practicing neurology. Yeah. That's an amazing story. You know, God takes all the mess that we have, all of the challenges and he works it out for good.

I love it. So I would love to go back to, I know listeners are going to be like, what? HCL or ACL and concussion? Like, can you connect those dots for us?

Yeah. So a lot of people really struggled to make that connection of how does, how is doing something to my knee? How does that come from my brain? And, and when you look at, um, the mechanism of concussion, a couple of things that really happen with, with concussions.

Um, one is you start to lose proprioceptive or spatial awareness. And so you, so, you lose the ability both to understand where your body's located and, Um, quick reaction time gets diminished.

And so, so most ACL tears are non-contact. About 75% of ACL tares are not in contact. and, um, and then within that, So that means you're not taking a hit, right?

You're just, it's really just you stepping wrong. You are planting wrong, and you just tear through that ACL. And so really looking at that, and now a lot of the research that's coming out is showing between 70 and 80% of individuals after a concussion within a year will have a lower extremity injury.

Really? Yeah. So, so that's where a lot of that comes where if you lose that motor control, that spatial awareness, the ability to make a quick reaction, then you put yourself in a vulnerable position and then, you can't support yourself once you're in that position.

And then it's just very easy for the forces to kind of tear through these. Well, that makes complete sense. And how many decades has it been like to connect those dots since people started playing sports?

Well and what's interesting is even then just last night I was having a conversation with a mother of a patient that just started coming seeing us. He had division one offers for football, ended up getting those pulled because the start of his senior year, he had a concussion, recovered from that, didn't think anything of it.

Then within about four weeks, you had an ACL tear. And so he got most of his division one offers pulled. He's now going division two. Um, but, uh, so we were talking with his mom and, and uh she started putting that piece together and she does some, um, strength and conditioning for some schools in the area.

And she's starting to see this pattern. She just said, she was like, just in last two weeks, since you guys mentioned that I'm seeing these athletes that i'm working with that have had a head injury and within a few months they have either an ACL or an ankle or something pretty severe.

Yeah. And I mean, I look at all of the kids, you know, just even around town, like, how can all you tear so many things? Like it just never, it never happened.

You know? When, when I was growing up, and I'm not saying nobody ever got a concussion because I am sure we did, but just like nobody had surgery. Like, It feels like it's a, Like an epidemic right now.

It like what do you think, what other things could have shifted? So that's where we're actually exploring a little bit into why we might see an elevated rise in rates of concussion.

I think there's two factors. One is we are getting better awareness and better understanding and maybe some better diagnostic, although I would argue our diagnostic isn't better.

We're just actually looking for it more. So I actually think that that is one reason for the increased rates for concussions. The second reason actually though is If you look at the change in lifestyle and you looked at some of the risk factors for concussion, the number one risk factor for your concusion is a previous concussion, just like any injury, right?

Right. But other than a previously concussions, that single greatest risk for a concoction is neck strain, which again, most people are sitting there thinking, how do you get a head injury from a weak neck?

And so that's where, but the statistics are pretty clear that that a factor. So, so then, that's one component of it. And I'm going to come back to that in just a second.

Okay. Second component with the lifestyle that also ties in is when we were doing our fellowship training in concussion rehab, we started asking the question, okay, everybody's looking at how to treat a concussions, but very few people are actually looking out how the preventative concoction.

Why concussion rates may be rising

How can you reduce your risk for it? And so we started doing some research and looking for individuals that were asking that question. And we came across Dr.

Joe Clark at the University of Cincinnati and did some of our training under him. He's cut the concussion rates on the Cincinnati football team by 80%. Wow.

That's phenomenal. Yeah. We started looking at, okay, why is he doing that? We went and we start shadowing him

and spending time learning from him, and what he's doing primarily is working on neuro-visual training.

And working on how the eyes are both having better discipline, but better processing speeds of processing and the ability then to see what's happening before it's too late to make a response to it.

And so when you start tying those two mechanisms together, you started to say, okay, and they're improving their peripheral field of vision by about 15 degrees.

So, so they can see more of what's happening. And when they see see what is happening, when these players can then brace and protect themselves from that, they engage their neck faster and they don't get this whipping mechanism.

Most concussions now are viewed more as that whipping, that acceleration, deceleration that's happened. So with that now, you're able to actually protect yourself.

So with that, when you tie in that visual component and the cervical component as huge risk factors for a concussion, then you can start playing that back into lifestyle and saying, so what's changing and happening in our lifestyle that may be making us more prone to a head injury?

What are we doing that's making this have weaker necks? And our vision is less, not just acute from our eyes, but less accurate with our visual. And you start to see this rise in screen time.

You start seeing this in indoor activities, a decrease in physical activities. Exercise, play outside, all these things that we did growing up. Where on a farm with seven brothers, we were outside playing football in the snow drift.

We were out separate. hours a day. Now it's you're inside, you are on a screen, and you sitting in a classroom on the screen. You start seeing this forward head drift like this.

Once you get that forward drift, now you start, your leading yourself prone to more of a whipping mechanism. And so you gain your visual field to be very acute in this space.

Instead of this phase, You started having that forehead carriage and then you just setting yourself up really prone for injury. Right. So how do you prevent that?

Good question. So first off, just like any injury, you can't fully prevent it. I'm very big on semantics. You can't necessarily prevent it, but you can reduce your risk back.

Okay. Yup. Right. And so, you could reduce you risk. Really the two biggest ways, if you're playing sports, the biggest two ways are going to be to work on improving your visual control.

There's lots of different visual exercises and different things that we do here clinically to working on that. Working on your improving visual controls.

And then improving neck strength. And so that's from an athlete standpoint, when we take athletes through any programming to reduce their risk, a lot of that is training their eyes and training the neck.

Now when it comes to more of a general population, there's a couple of different factors that you can look at. One is getting off of the screens, getting up, being active, and being physically healthy.

Those are some of biggest factors in helping reduce your risk for either a concussion or a severe response to a Yeah. Yeah, those make a big difference.

It's interesting because a lot of times we make health very complex and health is actually very simple. Health is hard work, especially because of the way our lifestyle and our society is set it up for ease and comfort.

You eat properly where you're not over consuming toxic levels of whether it's dyes and artificial foods and processed foods, and all that stuff, but you are making sure you getting enough of good resources in your diet.

Same thing with exercise, you not getting too much sedentary lifestyle, You're getting good recovery and rest. All of those things is actually very simple.

Can't be that simple, Joe. You'd be surprised. The research backs it up. I know. It's amazing, right? Just get some good sleep, get good exercise, stop eating crap, and you reduce your risk of like 80% of, 90% percent of everything that's going around.

Yeah. And I don't know why we're addicted to convenience, I guess. That's a really good way to put it.

Preventing concussion with vision and neck training

Because it's so easy to run through. Even if you pick the Chipotle restaurant as opposed to McDonald's, it still not fantastic food. Right. You're not getting that nutrient density.

We're getting the nutrient intensity. Yeah, that is for sure. I would say as you're talking about this, I was thinking about my daughter. She's had three concussions.

First one she had when she was six, a kid tried to hurdle her. we were doing a homeschool play at a building and center. He missed the hurdle and he caught his knee under her chin and sent her into the cement and knocked her out cold.

So that was bad. She lost all of her ability to read and math skills at that point in time, and it took us a long time. Because I didn't know functional neurology at the point and time I know anybody to take her to.

So we did the best I could. I bought an AccuScope machine, I did cranial sacral, we do chiropractic. We did a lot of stuff. And then we've kindly thought, hey, were good.

Then she was riding a horse. The horse, she went over the fence and the horse didn' go over fence. And so, you know, so we've had some interesting things.

We've really active kids and still have the concussions anyway. But, she's 19 now and she got smacked in the face because she plays co-ed volleyball every week.

And she gotten hit in face. She's like, I'm fine. Oh, we checked her eyes, do all the things that I know now as a mom. Yeah. It was fine, but like two days later, you're off emotionally and she just couldn't think what to do next.

And so when you say once you've had one, it makes you more susceptible if you get hit in the head and stuff like that. I feel like we do all the right things.

She goes to hyperbaric, she does the crane. And so when we say prevent, like when you're talking about the semantics, I can't prevent that from it. But I feel like this week she's pretty good because she has done all the things, but things still happen.

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So it's real science, real results, no band-aids. Enrollment is now open. Link is in the show notes. So back to the. Yeah, they do. Yep. They do and that's where.

I often encourage my patients that we're not going to live a cautious life, right? We're going not to sit back and do nothing because that's actually counterproductive.

And even a lot of the research that is emerging is showing the two greatest things that you can do. These are actually significant misconceptions that I deal with all the time.

In the acute phase of a concussion within the first week, two of best things you could do, one is sleep. Like sleep as much as you can. You don't need to wake somebody up unless they're projectile vomiting and there's severe, severe signs, but you're not guessing at those.

Those are obvious, very severe. Signs where it's like, okay, you go into a spill for that. Um, otherwise sleep, sleep is the best recovery that you could have for the brain after an acute injury.

And then the second thing is active. active engagement, and primarily walking, like a brisk walk, is one of the best things that you can do within that week.

It's just getting up and going for longer walks. And so if you could do those two things, you start stimulating the brain, but then you also give it the time to recover with the sleep.

So those are really the two best thing that can you do is engaging those mechanisms. Yeah. I think that's key for anything, right? You get sleep and you get movement.

You can't repair if your not doing another one. Right. And so, that's what we're trying to encourage people, okay, you need to start getting back into living, not just sit back and do nothing.

And, so if you have too much of a cautious approach, You want to be safe, but also you want start to getting into a living life. Yeah, for sure. I would love you to dive into what is functional neurology, as opposed to basic chiropractic care or a neurologist who's not functional.

Sure. Yeah. So the difference between, I'll start with functional neurology versus more traditional medical neurologies, is medical nerology is looking for pathologies.

And so it's looking for like, is there a stroke? Is there tumor? Do we start to see more advanced stages of disease? MS, Alzheimer's, those kinds of things where you can take an image and you see, oh, there's actual physical shrinkage of the brain.

Recovery basics: sleep, movement, and lifestyle

That's more end stage, the house is already consumed with fire, right? It's pretty advanced. And that's what medical neurology is primarily looking at.

The primary intervention that a medical neurologist has is medications or then referral for surgery. Functional neurologist is really looking the brain less of a mechanical nature, less a machine and more of the network model.

So think of more like a computer network. where you have nodes of communication that has to communicate back and forth. And that's what a functional neurologist is really going to look at.

This is a little bit simplified, but it's actually a really good analogy. The brain is receiving sensory information from all of its senses, our eyes, ears, nose, tongue, right?

All the five senses. The special senses and then proprioception from your joints and muscles, from, your body inside of you. And it's trying to match all that up and process all the information and create a response to the environment around you And so that's how the brain works.

And what we're looking at is how can we utilize various sensory inputs to change and create neuroplasticity so the brains can work more efficiently. And so, so that's where our training as a chiropractic neurologist or a functional neurologists is.

So after our chriopractic degree, after any primary medical degrees, we had medical doctors, chiroppractors, PTs. We had kind of the full gamut within our program.

Then after that, then it's post-doctoral work. And that is about three years of work and then board certification and fellowship trainings on top of that.

And so that's where it's different than even standard chiropractic is, there's a lot more education that goes on top of your degree. Chiropractics is wonderful because you can get some really good effects on the brain through joint input.

But then within our training, within the fellowship training for concussions, about three quarters of it was in the visual system. And so I never planned on being an eye doctor, but I've actually had way more training on the visual system.

And when you start to understand that about 85% of the brain is involved in vision and that vision is more than just your eyes. Then you started to see, Oh, this is actually a really good way to intervene in the.

use different modalities, whether you're looking at visual exercises, you are looking a vestibular exercises. You're look at proprioceptive, autonomic and dysautonomia types of processes.

So really it's looking how can we create sensory input to change how the brain is integrating the signal so that it can create a better response to the environment around.

I love it. Earlier in the podcast, you mentioned your daughter and kind of diving into that pediatric neurology as well. Can you kind share what that looks like for kids and what you're seeing?

Yeah, so one of the trends in pediatric neurology, especially when you're looking more at a functional approach. When you are looking at that, one the main trends is primitive reflexes and looking primitive.

Primitive reflex are this reflex, kind of like with your tendon reflex when he tap it, it kind gives that little kick, right? We have these reflex that are supposed to be very metabolically efficient.

What functional neurology is

where it doesn't take a lot of energy and metabolism to make something happen. And so there's these different reflexes. There's a visual reflex where as you quickly turn your head to one side, your eyes get pushed to the opposite side.

That's called a vestibular ocular reflex. so that now I can keep good stability in my eyes. Primitive reflexes are actually supposed to happen primarily within the birth process and really early stages of life to help babies survive before they can actually process the environment around them.

So think of like going through the Birth Canal, the baby doesn't plan that, it just naturally happens, right? tuck their head around and their shoulders.

And that works very naturally with the mom's body to then create this very smooth birth process. Then you've got other primitive reflexes like the sucking or rooting reflex where you kind of tap their cheek and they kind turn and it's to help them find their food source.

So these primitive refluxes are supposed to be there in the very early stages of life. Within nine months, most of the time, those should be gone. And those kind of get remediated through learning how to move and learning to engage at a higher level.

So from a pediatric standpoint, there's been this heavy emphasis on improving primitive reflexes. We do some with that, but we actually take it a lot further because of our background in concussion rehab.

Because of that now, we bring a more advanced, both from a visual and vestibular standpoint, and then also from cognitive training that we've done, again, for that concussion.

So we're looking at building from, okay, are these reflexes working well? Now is the visual system working? Well, now are the cognitive systems working, well, so kind of building that pyramid off of it.

And when you start to understand that the brain is this small little organ, It takes up very little space, but the amount of work that it does is almost incomprehensible.

But the way that you're able to process all of this emotional and relational interpretations and all this physical responsibility. everything that the brain does is you start to see that all of these pathways actually have overlapping functions.

And so if a certain pathway in your brain is there to, let's say, stop an eye movement. So if I see something moving over here in my periphery, my eyes want to go towards that, right?

Right. But then I've got my frontal system that's stopping my eye from moving that way and saying, no, I need to look over in that other direction. That same circuitry is actually engaging from an emotional response of this.

And so we work with a lot of kids that have kind of behavioral tantrum outburst, this emotional dysregulation where they can't stop themselves from responding a certain way.

Then after the fact, they're like, I didn't want to do that. I just couldn't And a lot of times you'll find it in that similar, okay, this frontal system, it's not working.

You'll see their eyes aren't engaging like that. And then this frontal system is not. Working and you will see that emotional dysregulation tied into that so, so you've got this overlapping circuitry between emotional regulation and physical regulation.

And so that's where we can kind of start leaning into addressing both physical thinking, things like, um, dis-coordination, fine motor skills issues, but then also you talk about issues like PANS and PANDAS that are coming up.

That's a, that a sensitized immune response, right? Because of, because of strep infection, But also, you're creating this sensitize neurological system.

And so then you're getting this dysregulated behavior because they're not able to get into some of those higher centers of their thinking.

Pediatric neurology and primitive reflexes

And to be able work kind of on that level, I love working with functional medicine because you can address kind that over responsive immune response on the functional medicines side, but then, you work on regulation from the neurological side.

So being able address both of these angles, they will help with some emotional dys-regulation. Right. Can you give us an example of like one of your patients, how this helped?

Like one other kid? Yeah. I mean, my daughter, I'll just share her story. This is what got me into and so passionate about working with kids is she was about three, four years old and she sweetest little child, I mean, just very relationally engaged.

And then she started having these issues and we were noticing some emotional dysregulation initially a little bit, but then started getting all these rashes all over her body.

So we kind of did the initial stages of some elimination diet, removing dyes, some of the major triggers. Within about four weeks, the rash went away.

I took her on a daddy date and gave her some pancakes, and within about five minutes, she was in the car seat, tearing her hair out, slamming her head against the cars seat.

And that was kind of her behavior for almost a year and a half. Where it was just constantly, She would sit on my wife's lap and my life would have to hold her to calm her down.

She'd just be talking to her and she's like, Okay, this is a peaceful environment. Things, you're safe. things are calm. Jesus is here, wants to bring peace.

And she'd look at my wife, look her in the eyes and say, I don't want Jesus. I want to see. and then she starts slamming her head into the walls. We're like, intuitively, This is not because we're bad parents.

Right. right? And I know intuitively that this also not, because she's a bad child that just wants This is not how a root baleous child works. They don't slam their head into the wall.

And so that's what we actually, that kind of what led me into, the pediatric neurology was her. So then we, as I was learning, I starting to implement a lot of the techniques that I learning and working through some treatment with her on that.

That's kind what then, we created some programming around that to help other kids. But to this day, she was not sleeping through the night. She'd wake up just screaming with night terrors.

she started sleeping throughout the day. Within, She was seven years old and still wetting the bed. Uh, and, I was doing all the things that usually work, but they weren't working with her.

And within about two weeks of starting to do some of the neural training, the visual training. Some of that. Things that we were doing within, about 2 weeks, quit wet the, bed and has not wet since.

She started sleeping through the night. She's at peace. she's able to regulate herself. Stop slamming her head into the walls. And that's what then led me to say, okay, there's more kids that need this and there are parents that are struggling because they know they're a good parent and the child is a child, but they can't find answers for that.

So yeah, we work with kids all the time that similar things, whether it's one of the kids we saw initially, he was having kind of similar more depressive type symptoms though.

I believe he nine years old and getting into third, fourth grade, couldn't read at a first grade level, was starting to really struggle with identity with that and had done six months of vision training with a eye doctor in the area.

But we were able to trace back. He had fallen off stairs when he was a little baby and able identify he had a concussion with that. So we changed how we are treating him and doing more brain work and vision work.

And we did about two months' of work with him. That summer, he ended up being the top reader in his library program. It's just seeing things like that where it's When you address the brain, things that you're not necessarily trying to treat get better.

Right. Reading, if you think of reading, reading is heavily involved with both brain processing, but visual processing.

A daughter's recovery and the importance of listening to parents

And by correcting those, he's able to actually enjoy reading and he is picking it up and engaging and becoming who he really wants to be. Right, right.

And it's so, it just breaks your heart when you see kids that are struggling so much. You know, a kid wakes up and says, I want to throw a tantrum today.

Right. I mean, and then knowing that, yes, there's disobedience and tantrums, right? Yeah. And you know as a parent what is and what's not. Yes. Then you're in the school system and your kid gets labeled as that kid.

Maybe you put them on medications and we have all these kids running around on meds when they've got this neurological dysregulation going on. They probably have food sensitivities.

No blame on the parents in any way, shape, or form. It's what you know, you don't know. If you do know there's lots of things that I didn't when my daughter had her first concussion and stuff that would totally do different now.

Right. But it needs to get out there. And so I'm so glad that there are more people like you. There's more functional neurologists around the country now than there ever has been before, and there is such a need for it.

Yeah. The thing that i've learned in clinical practice is You have to listen to parents. Parents intuitively know, right? It's like, and I mean, even coming back, you said like what you did with your daughter's first concussion and how you would do it differently.

And a lot of times parents don't know. I had a lots of training. A lot school specifically in the brain and still didn't. No. Right. That's why I kept fighting for my daughter and my way to fight for her was to go back to school and learn more.

Right? And so that's where you have to learn that parents know what's going on with their child and trust them and let them actually lead the way. Not just say, I'm the expert.

You have do what I say. It's you are the experts in your child. I may be an expert in the brain, but a parent is an experts and their children when they know that something is just off, i've learned to trust that and then to do everything I can to investigate why that might be.

Right. And then empower the parents to say, here's what I see is going on with your child. Here's how you can step in and be part of the team of care.

Yeah, that is so good. Do you use any lasers and stuff in your practice? Yep. We use a cold laser. But yeah, we use that a lot. Uh, there's, uh, a really cool potential with cold lasers.

And, um, lot of research that's coming out. I could geek out for a while on that. Um, but yeah. There's actually some, the brand that we use, we used Erconia is what it's called, but they're actually in the final stages of FDA clearance for approval for autism treatment.

Awesome. So there's the end. They actually went through the process once and they got denied because the research was done in Cuba. Cuba has really good tracking of autism, much better than the US actually.

And so that's why they did it in Cuba. Well, then because results were showing so positive, the FDA wanted to see the site where they were doing the research and the Cuban government wasn't letting the FTA in.

And then they said, oh, you've got to reproduce this here in the States. So they've had to go through all the testing and everything again. But the results, they already pulled the result and they're looking the exact same.

It's really cool to that. how much it impacts the brain. Yeah. That's so good. Awesome. Anything else you want to leave the listeners with? Oh boy. I mean, there's, so much, right?

But I would say if I could just give an encouragement that we've traded, like you said before, we traded for comfort. We've, traded our own responsibility for.

And we also traded own responsibilities for experts.

Cold laser therapy and final advice

If there's anything that I can give somebody to move forward with is take responsibility for your own health. That you know your health better than anybody else.

Now, other people might know more specifically on physiology or how the brain works or the gut works, or things like that, but you have to be in control of your And if you're not taking responsibility for that, then nobody's going to be there to help you.

It's just, you are going be passed around from one person to the next to next until an answer is found. That is satisfying, but it's not necessarily the right answer.

So, take responsibility and pursue avenues that might seem out of the norm. Because, quite frankly, those are the ones that are probably getting results.

That's probably true, right? Anything that looks a little odd, little hokey pokey might be working. Right. Yeah. You have to look outside of the mainstream answers because quite frankly, the main stream is not giving us better health.

No, unfortunately not. Well, Joe, this has been an amazing conversation. Thank you so much for sharing your passion, your expertise. I know our listeners have gotten a lot out of this.

Awesome. And thank you everyone for listening. I appreciate each and every one of you. If you loved this interview and I know you probably know somebody that has a head injury, so make sure you like, subscribe, and share this video so this gets into more hands so that we can have better recovery for everybody all across the world.

That's right. So I really appreciate you, God bless you and i will see you in the next episode. Thanks for listening to Take Back My Brain. If today's episode helped you connect with hope or direction, I want you to follow the show, leave us a review, and share it with someone who needs it.

And if you're ready to start your own healing journey, explore our courses and our coaching programs at lorihammer.com backslash store. So until next time, remember you cannot medicate away a nutrient deficiency and healing your brain isn't just possible, it's Powerful.